

Withers, David Ian, 2005. Distributional Surveys for the Nashville Crayfish, *Orconectes shoupi*, an Endangered Crayfish in Tennessee, Final Report. Tennessee Division of Natural Heritage, Nashville, 11 pp + appendix.

Introduction and Summary

The Division of Natural Heritage (DNH) was contracted by the USFWS to conduct distributional surveys for the federally endangered Nashville crayfish, *Orconectes shoupi*. Surveys for the species were undertaken between fall 2004 and summer 2005, and were primarily directed at second order (and higher) tributaries and in the uppermost main stem portion of Mill Creek in Davidson & Williamson Counties, Tennessee. The purpose of these inventories was to produce a more comprehensive understanding of the distribution of the species, particularly in the most upper reaches of the watershed.

Orconectes (Crockerinus) shoupi Hobbs was described by Fleming in 1939 as *Cambarus propinquus sanborni* (Fleming, 1938-9), from specimens collected in Mill Creek (Miller *et al.*, 1990, O'Bara *et al.*, 1985). Hobbs reassigned the species to the genus *Orconectes* in 1948 and renamed it in honor of Dr. Charles S. Shoup, a Vanderbilt University biology professor of the time (Hobbs, 1948). The species was later assigned to the subgenus *Crockerinus* (Fitzpatrick, 1987).

The Nashville crayfish was listed as Endangered by the USFWS on October 27, 1986, due to its apparent restriction to the Mill Creek watershed and continuing threats from development to the same. The species was subsequently listed as Endangered under state law by the TWRA. The federal Recovery Plan for the species was completed in 1988 (USFWS, 1988).

Early accounts suggested that the species was limited solely to Mill Creek and its largest tributaries (including Sevenmile Creek), but research over the last 20 years has documented the species in progressively smaller waters. Much of recent data is in direct response to certain regulatory requirements either directly or indirectly following from the listing of the species and its protection under the Endangered Species Act (O'Bara, 1999, *in part*, by inference). Though often not abundant in the most minor of Mill Creek tributaries, *O. shoupi* has managed to eke out an existence at many locations despite an overwhelming abundance of competing species.

The species is still believed to be limited to the Mill Creek basin in Davidson & Williamson Counties, where its preferred habitat includes free-flowing waters dominated by a slabrock on bedrock substrate.

The Nashville crayfish was reported from twelve primary (directly connected) and four secondary Mill Creek tributaries prior to the initiation of this study. The current survey has documented the species from an additional eight streams in the Mill Creek basin and from nine new sites in tributaries from

which they were previously reported. Additionally, eight previously known records have been reconfirmed, and an additional nine new records in Mill Creek proper have been recorded.